

WHAT IS CLAIMED IS:

1. A rangefinder for obtaining information about the three-dimensional location of an object by projecting light onto the object and receiving part of the light that has been reflected from the object, the rangefinder comprising:

a light source for projecting the light on the object;

a camera for receiving the part of the projected light that has been reflected from the object; and

a controller for controlling optical output power of the light source and/or exposure conditions of the camera based on range information about the object.

2. The rangefinder of Claim 1, further comprising a distance-measuring sensor for measuring the distance to the object,

wherein the controller uses the output of the distance-measuring sensor as an item of the range information about the object.

3. The rangefinder of Claim 1, further comprising a range calculator for obtaining a range image based ^{on} a video signal output from the camera, ansp

wherein the controller uses the range image obtained by the range calculator as an item of the range information about the object.

4. The rangefinder of Claim 1, wherein if the controller has determined based on the range information that the distance to the object is equal to or greater than a first threshold value, the controller increases the optical output power of the light source, and

wherein if the controller has determined based on the range information that the distance is equal to or smaller than a second threshold value, the controller decreases the optical output power of the light source.

5. The rangefinder of Claim 1, wherein the exposure conditions of the camera are defined based on at least one of a diaphragm stop, a sensitivity of an imager and a shutter speed.

6. The rangefinder of Claim 1, further comprising a shutter, which can open and close freely and blocks the light that has been projected from the light source when closed,

wherein the controller selectively controls the open and closed states of the shutter.

7. A rangefinder for obtaining information about the three-dimensional location of an object by projecting light onto the object and receiving part of the light that has been reflected from the object, the rangefinder comprising:

a light source for projecting the light on the object;
a camera for receiving the part of the projected light that has been reflected from the object; and

a controller for controlling optical output power of the light source and/or exposure conditions of the camera based on information about the level of a video signal output from the camera.

8. The rangefinder of Claim 7, wherein if the controller has determined based on the level information that the distance to the object is equal to or greater than a first threshold value, the controller increases the optical output power of the light source, and

wherein if the controller has determined based on the level information that the distance is equal to or smaller than a second threshold value, the controller decreases the optical output power of the light source.

9. The rangefinder of Claim 7, wherein the exposure conditions of the camera are defined based on at least one of a diaphragm stop, a sensitivity of an imager and a shutter speed.

10. The rangefinder of Claim 7, further comprising a shutter, which can open and close freely and blocks the light

that has been projected from the light source when closed,

wherein the controller selectively controls the open and closed states of the shutter.

11. A rangefinder for obtaining information about the three-dimensional location of an object by projecting light onto the object and receiving part of the light that has been reflected from the object, the rangefinder comprising:

a light source for projecting the light on the object;

a camera for receiving the part of the projected light that has been reflected from the object, the camera being able to capture a two-dimensional image; and

a controller for setting a signal level of an image component of the object lower in capturing a three-dimensional image than in capturing the two-dimensional image so as to sufficiently increase a signal level of the reflected light when the light source projects the light on the object.

12. The rangefinder of Claim 11, wherein the camera includes a filter for adjusting an intensity per unit area of the light incident on the camera, and

wherein the controller sets transmittance of the filter relatively low in capturing the three-dimensional image and relatively high in capturing the two-dimensional image.

13. The rangefinder of Claim 12, wherein the filter comprises a liquid crystal device, the transmittance of the filter being controllable based on a voltage applied to the liquid crystal device.

14. The rangefinder of Claim 11, wherein the controller controls the exposure conditions of the camera.

15. The rangefinder of Claim 14, wherein the exposure conditions of the camera are defined based on at least one of a diaphragm stop, a sensitivity of an imager and a shutter speed.

16. An imager comprising:

a light source for projecting light onto an object, the optical properties of the projected light changing depending on a direction in which the light has been projected;

a camera for capturing a two-dimensional image of the object by receiving part of the projected light that has been reflected from the object; and

a foreground/background distinguisher for dividing the two-dimensional image into foreground and background parts based on optical properties of the light that has been reflected from the object.

17. The imager of Claim 16, further comprising a separator for cutting out the foreground or background part from the two-dimensional image based on the result of division performed by the identifier.

18. The imager of Claim 16, wherein the light source projects first and second light beams, the intensity of each of the first and second beams being variable depending on a direction in which the beam has been projected, the intensity of the first beam changing in a different pattern than that of the second beam, and

wherein the foreground/background distinguisher distinguishes the foreground and background parts from each other based on an intensity ratio of reflected part of the first beam to that of the second beam.

19. The imager of Claim 16, wherein the light source projects light with an intensity variable depending on a direction in which the light has been projected, and

wherein the foreground/background distinguisher distinguishes the foreground and background parts from each other based on an intensity of reflected part of the projected light.

20. The imager of Claim 16, further comprising a thresh-

old determiner for determining a threshold value on an object-by-object basis as a reference for distinguishing the foreground and background parts from each other.

21. The imager of Claim 20, wherein the threshold determiner determines the threshold value based on the distribution of optical properties of the light that has been reflected from the object and incident on respective pixels in the camera.

22. The imager of Claim 20, wherein the threshold determiner determines the threshold value based on a surface reflectance of the object.

23. The imager of Claim 22, further comprising a distance-measuring sensor for measuring the distance to the object,

wherein the threshold determiner estimates the surface reflectance of the object based on the distance measured by the distance-measuring sensor.